

Message Text

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INFO OCT-01 ISO-00 FEA-01 ACDA-10 CEQ-01 CIAE-00 DOTE-00

EPA-04 HEW-06 HUD-02 INR-07 INT-05 L-02 NSAE-00

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R 161000Z NOV 74
FM USMISSION NATO
TO SECSTATE WASHDC 8807
INFO ALL NATO CAPITALS 4673
AMEMBASSY BELGRADE
EMEMBASSY BERN 172
AMEMBASSY DUBLIN
AMEMBASSY HELSINKI
AMEMBASSY MADRID
AMEMBASSY STOCKHOLM
AMEMBASSY VIENNA
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AMCONGEN MILAN
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E.O. 11652: N/A
TAGS: SENV, ENRG, NATO
SUBJECT: CCMS: ENERGY CONSERVATION PILOT STUDY-ELECTRICUTILITY
LOAD MANAGEMENT MEETING AT NATO NOVEMBER 12-13, 1974

DEPARTMENT PLEASE PASS EPA FOR F. ALLEN HARRIS AND FEA FOR
ROGER SANT AND WILLIAM PORTER

REF: STATE 228249
B. USNATO 6973

SUMMARY: ELECTRIC UTILITIES' AND OTHER REPS FROM TEN
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COUNTRIS, PLUS UNIPEDE (EUROPEAN REGIONAL ELECTRIC UTILITY
ASSOCIATION, IN PARIS), MET AT NATO HEADQUARTERS NOVEMBER
12-13, ON ELECTRIC UTILITY LOAD MANAGEMENT PROJECT OF CCMS
ENERGY CONSERVATION PILOT STUDY. MEETING WAS DISTINGUISHED

BY HIGHLY USEFUL TWO-WAY EXCHANGE OF U.S. AND EUROPEAN PRACTICAL EXPERIENCE AND TECHNICAL DATA IN FIELD. HIGHLIGHTS OF PROCEEDINGS FOLLOW. END SUMMARY.

1. THIRD PROJECT MEETING OF EXPERTS ON ELECTRIC UTILITY LOAD MANAGEMENT PROJECT, UNDER CCMS ENERGY CONSERVATION PILOT STUDY, WAS HELD AT NATO HEADQUARTERS NOVEMBER 12-13, 1974. U.S. DEL CONSISTED OF FEDERAL ENERGY ADMINISTRATION TEAM LED BY DR. MELVIN CHIOGIOJE, WHO CHAIRED MEETING, PLUS EXECUTIVES OF FIVE MAJOR U.S. ELECTRIC UTILITIES, AS WELL AS REPRESENTATIVES OF THE U.S. ELECTRICAL UTILITY INDUSTRY ASSOCIATION AND THE ELECTRIC MANUFACTURING INDUSTRY IN THE U. S. OTHER MEETING PARTICIPANTS INCLUDED REPRESENTATIVES FROM ELECTRIC UTILITIES IN BELGIUM, FRANCE, FRG, IRELAND, ITALY, NETHERLANDS, SWITZERLAND AND UK. TURKEY WAS REPRESENTED AT NATO DELEGATION LEVEL. ALSO PRESENT WERE THE SECRETARY GENERAL OF UNIPEDE AND HIS DEPUTY, AS WELL AS REPS OF THE NATO SECRETARIAT.

2. HIGHLIGHTS OF MEETING (KEYED TO AGENDA REF A) WERE AS FOLLOWS:

A) LOAD LEVELING THROUGH ENERGY STORAGE BY ELECTRIC UTILITY

TECHNOLOGY HIGHLIGHTS-BOTH U.S. AND EUROPEAN UTILITIES ARE INVESTIGATING THE FEASIBILITY OF ENERGY STORAGE TO ASSIST IN MEETING PEAK DEMAND. TWO PARTICULAR TECHNIQUES APPEAR TO HAVE IMMEDIATE COMMERCIAL FEASIBILITY: PUMPED STORAGE AND COMPRESSED AIR STORAGE (COMBINED WITH A GAS TURBINE). FOR EXAMPLE

(I) ITALIANS ARE PUMPING WATER TO HEIGHTS OF GREATER THAN 1000 METERS WITHOUT STAGING. ITALY'S PRESENT PUMPED STORAGE GENERATING CAPACITY IS 2000 MEGAWATTS, WITH 4500 MEGAWATTS ADDITIONAL CAPACITY PLANNED. IN VIEW OF U.S. DEL., DETAILS UNCLASSIFIED

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PROVIDED ON ITALIAN EXPERIENCE SHOULD BE VALUABLE TO U.S. AND OTHERS FOR PROJECTED UNDERGROUND PUMPED STORAGE SYSTEMS WHERE HIGH HEADS OF PRESSURE OF THE SAME ORDER OF MAGNITUDE ARE ENVISAGED. POTENTIAL ENERGY SAVINGS RESULTING FROM ADOPTION OF THIS SYSTEM CAN AMOUNT TO 20 PERCENT OF ALTERNATIVE PEAKING SYSTEMS' ENERGY CONSUMPTION.

(II) REPRESENTATIVE OF NORDWESTDEUTSCHE KRAFTWERKE A.G. IN FRG DESCRIBED WORK'S FIRST UNDERGROUND COMPRESSED AIR STORAGE FACILITY COUPLED WITH A GAS TURBINE, WITH PEAK GENERATING

CAPACITY OF 290 MEGAWATTS, WHICH WILL BE COMPLETED BY 1977. OVERALL COST AT \$125 PER KILOWATT WOULD BE LOWER THAN THAT OF A CONVENTIONAL GAS TURBINE. FRG SYSTEM USES TWO SALT CAVERNE OF 150,000 CUBIC METERS EACH. POTENTIAL ENERGY SAVINGS RESULTING FROM ADOPTION OF THIS SYSTEM CAN AMOUNT TO APPROXIMATELY 20-25 PERCENT OF ALTERNATIVE PEAKING SYSTEMS' ENERGY CONSUMPTION.

(III) EUROPEAN PARTICIPANTS IN TURN EXPRESSED STRONG INTEREST IN U.S. ENERGY STORAGE R&D PROGRAM AND A DESIRE TO BE KEPT INFORMED OF PROGRESS IN THIS AREA.

B) LOAD LEVELING IN INDUSTRY

TECHNOLOGY HIGHLIGHTS-EUROPEAN REPS DESCRIBED UTILITIES' PRACTICE IN EUROPE OF OFFERING SIGNIFICANT RATE REDUCTIONS FOR OFF PEAK ENERGY USE, AND POINTED OUT THAT THEIR ENERGY DEMAND LOAD CURVES INDICATED THAT INDUSTRY IS TAKING ADVANTAGE OF THIS FINANCIAL INCENTIVE. ALTHOUGH RESULTING SAVINGS IN EUROPE NOT YET QUANTIFIED, U.S. DEL MEMBERS EXPRESSED KEEN INTEREST AND INTENTION TO INVESTIGATE FURTHER THROUGH DIRECT CONTACT WITH EUROPEAN INDUSTRIES.

C) AIR CONDITIONING
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U.S. UTILITIES REPS EXPLAINED THEIR SUMMER PEAKING PROBLEMS. THESE PARALLEL THE PEAKING PROBLEM IN EUROPE IN CONNECTION WITH ELECTRIC HEATING ENERGY DEMANDS. U.S. DEL MEMBER PROVIDED BRIEF DESCRIPTION OF RESEARCH WORK BEING CONDUCTED BY THE UNIVERSITY OF PENNSLYVANIA AND THE WESTINGHOUSE CORPORATION ON THE STORAGE OF COLD. THIS PROVED TO BE OF GREAT INTEREST TO EUROPEANS, AS WELL AS OTHER U.S. REPS. EUROPEAN REPRESENTATIVES COMMENTED ON FACT THAT ALTHOUGH THEY DID NOT HAVE HEAVY AIR CONDITIONING LOADS AT PRESENT, MEETING PROVIDED OPPORTUNITY TO LEARN ABOUT PROBLEMS THEY ARE LIKELY TO FACT IN THE FUTURE.

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R 161000Z NOV 74

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INFO ALL NATO CAPITALS 4674

AMEMBASSY BELGRADE

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D) ELECTRIC HEAT

U.S. UTILITY EXECUTIVES PRESENT EXPLAINED THE PEAK DEMAND PROBLEMS FACING THEM DUE TO THE USE IN THE U.S. OF DIRECT RESISTANCE HEATING. EUROPEAN UTILITY REPS POINTED OUT THAT THEIR SOLUTION TO THIS PROBLEM LAY IN THE USE OF THERMAL STORAGE SYSTEMS, WHICH WERE ENCOURAGED BY LOWER OFF-PEAK RATE STRUCTURES PREVALENT IN EUROPE. A REP FROM RWE, THE LARGEST GERMAN UTILITY, INDICATED THAT THE RATION OF RWE'S RATES FOR DIRECT RESISTANCE HEATING AS COMPARED TO THOSE FOR NIGHT STORAGE HEATING WAS ON THE ORDER OF 3 TO 5:1. U.S. REPS COMMENTED THAT TO DATE THE U.S. UTILITIES UNCLASSIFIED

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HAVE NOT ADOPTED RATE DIFFERENTIALS OF THIS SORT. HOWEVER, THEY ADMITTED THAT WITH THE SHARPLY RISING COST OF ENERGY, COMBINED WITH PROBLEMS IN FINANCING ADDITIONAL FACILITIES TO MEET PEAK LOAD DEMANDS, THE EUROPEAN APPROACH HAS BECOME MORE INTERESTING TO THEM. EUROPEAN UTILITIES REPS PRESENTED INFORMATION ON THE COST OF STORAGE HEATING UNITS AND THE ASSOCIATED CONTROLS. ONE U.S. UTILITY REP SAID THAT THE CONTROL SYSTEMS DESCRIBED WERE OF GREAT INTEREST TO HIM AND THAT HE WOULD ESTABLISH DIRECT CONTACT WITH GERMAN UTILITIES TO OBTAIN MORE INFORMATION.

TECHNOLOGY HIGHLIGHTS-ONE U.S. UTILITY REP INDICATED THAT HIS ORGANIZATION WOULD INSTALL AN IRISH PROTOTYPE

STORAGE HEATER WITH APPLICATION IN THE FIELD OF RETROFITTING CENTRAL FOSSIL FUEL HYDRONIC SYSTEMS, BASED ON A DESIGN DESCRIBED BY THE IRISH REP IN HIS PRESENTATION. SEVERAL U.S. REPS EXPRESSED KEEN INTEREST IN EUROPEAN UTILITY RIPPLE CONTROL SYSTEMS WHICH PROVIDE CONSIDERABLE FLEXIBILITY IN MANAGING LOADS IN DIFFERENT DISTRIBUTION CIRCUITS AND WHICH APPEAR TO OFFER GREAT POTENTIAL FOR IMPROVED LOAD MANAGEMENT.

E. TIME OF DAY-PEAK LOAD METERING
EUROPEAN UTILITIES REPS EXPLAINED IN DETAIL THE RATIONALE FOR THE ADOPTION OF RATES WHICH DIFFER BY TIME OF DAY AND BY COINCIDENCE WITH SYSTEM PEAKS. THEY INDICATED THE MAGNITUDE OF SUCH DIFFERENCES AND GAVE FIGURES ON THE COST REQUIRED FOR THE NECESSARY METERING SYSTEMS. U.S. REPS ACKNOWLEDGED THAT SUCH SYSTEMS WERE ECONOMICALLY VIABLE FOR INDUSTRIAL CONSUMERS AND MIGHT ALSO BE VIABLE FOR SMALLER CONSUMERS. BOTH U.S. AND EUROPEAN UTILITIES REPS AGREED THAT FURTHER DISCUSSIONS SHOULD OCCUR. U.S. WORKING GROUP WILL DISTRIBUTE A SPECIFIC EUROPEAN EQUIPMENT INFORMATION PACKAGE TO U.S. UTILITIES.

F) RATE STRUCTURE RATIONALE

HIGHLIGHT OF EUROPEAN REPS' STATEMENTS ON THIS TOPIC
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WAS DETAILED EXPLANATION BY UK REP OF MARGINAL COSTING APPROACH USED TO DEVELOP RATE STRUCTURES. PARTICIPANTS ALSO DISCUSSED IMPACT OF PRICE INCREASES WITHIN PAST YEAR ON ELECTRIC ENERGY CONSUMPTION IN THE PARTICIPATING COUNTRIES, AS SUMMARIZED IN THE TABLE BELOW:

COUNTRY	PERCENTAGE PRICE INCREASE	IMPACT ON ELECTRIC ENERGY CONSUMPTION
FRANCE	18PCT	NONE NOTICEABLE
SWITZERLAND	15PCT	SLIGHT DROP IN INDUSTRY CONSUMPTION. NO OTHER NOTICEABLE EFFECTS
FRG	15PCT	VERY SLIGHT DECREASE IN CONSUMPTION. HARDLY ANY IN RESIDENTIAL SECTOR.
ITALY		THE IMPACT OF PRICE INCREASE IS UNKNOWN AT THIS TIME BECAUSE OF LAG IN BILLING PERIODS (E.G. 6 MONTHS).
UK	DOMESTIC 30 PCT	ELECTRIC ENERGY CONSUMP-

INDUSTRIAL 40 PCT TION GROWTH HAS BECOME
STATIC AS COMPARED TO
5PCT PREVIOUS ANNUAL
INCREASES.

IRELAND 80 PCT OVERALL GROWTH OF LAST
12 MONTHS DOWN TO 3 1/2
PCT FROM PREVIOUS 10 PCT.
(I.E. SPECIFICALLY,
HOUSEHOLD-3 1/2 PCT, DOWN
FROM 7 PCT, COMMERICAL-
ZERO, DOWN FROM 6 PCT
INDUSTRIAL-6PCT, DOWN
FROM 18 PCT.)

NETHERLANDS NO EFFECT
U.S.A. FOR COMPARISON PURPOSES
THE GROWTH OF ELECTRIC
ENERGY IN THE U.S.A.
FOR THE 52 WEEKS ENDING

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NOVEMBER 1974 WAS MINUS
0.3PCT AS COMPARED TO PLUS
7.9 PCT IN 1973. THIS WAS
RESULT OF AN INCREASE IN
KWH COST OF APPROX. 9 1/2
PCT.

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AMEMBASSY MADRID
AMEMBASSY STOCKHOLM

AMEMBASSY VIENNA
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3. MEETING CONCLUSIONS:

A. MEETING PARTICIPANTS AGREED

ON DESIRABILITY OF FURTHER MEETINGS, WHICH THEY BELIEVED SHOULD BE ON ANNUAL BASIS, EXCEPT FOR INSTANCES OF SPECIFIC TOPICS ON WHICH GREATER IN-DEPTH DISCUSSION MIGHT BE USEFUL AT A SPECIAL AD HOC MEETING. PREFERABLY, MEETING LOCATIONS SHOULD BE SELECTED SO AS TO ENABLE PARTICIPANTS TO MAKE RELATED SITE VISITS TO NEARBY MAJOR TECHNICAL FACILITIES.

B. IN ADDITION TO THESE MULTILATERAL SESSIONS, BOTH THE U.S. AND EUROPEAN UTILITIES REPS INDICATED THEY WOULD BE INTERESTED IN ESTABLISHING BILATERAL CONTACTS ON UNCLASSIFIED

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PARTICULAR TOPICS OF MUTUAL INTEREST IDENTIFIED AT THIS AND FUTURE MEETINGS. THE EUROPEANS EXPRESSED INTEREST IN RESULTS OF ONGOING U.S. RESEARCH EFFORTS AND IT WAS SUGGESTED THAT UNIPED could serve as a vehicle to distribute such U.S. material to its membership.

C. SENIOR INDUSTRY REPS ON BOTH THE U.S. AND EUROPEAN SIDES COMMENDED EFFECTIVENESS OF CCMS AS MECHANISM TO FACILITATE PRACTICAL AND INTENSIVE INFORMATION EXCHANGE ON TECHNOLOGICAL TOPICS OF HIGH PRIORITY INTEREST, AS IN LOAD MANAGEMENT FIELD.

D. GROUP AGREEMENT THAT NEXT MEETING SHOULD BE HELD, AT LATEST, PRIOR TO APRIL 1976 CCMS PLENARY. UNIPED AND U.S. ELECTRIC ENERGY ASSOCIATION (EEA) REPS ACCEPTED TASK OF SOLICITING AGENDA ITEMS FROM INTERESTED COUNTRIES.

TOPICS PROPOSED SO FAR FOR NEXT SESSION INCLUDE:

--ENERGY STORAGE
--LOAD CONTROL SYSTEMS
--RATE STRUCTURES
--TRANSFER OF RESULTS OF U.S. RESEARCH IN
ENERGY CONSERVATION AND LOAD LEVELING.
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TAGS: SENV, ENRG, NATO
To: STATE INFO ALL NATO CAPITALS
BELGRADE
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HELSINKI
MADRID

STOCKHOLM
VIENNA
WARSAW
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